

1.9
776247

FOREST SURVEY RELEASE * No. 19

Mr. Mc Intyre

April 30, 1936.

SOUTHERN FOREST EXPERIMENT STATION

E. L. Demmon, Director

New Orleans, La.



**PULPING AND NONPULPING CORDWOOD VOLUME
IN SURVEY UNIT NO. 2
FLORIDA**

By

SOUTHERN FOREST SURVEY STAFF

I. F. Eldredge

Regional Survey Director



* - This is an advance release of Forest Survey data that will be included in complete reports to be published later. This information is subject to correction or amplification as computations proceed.

FOREWORD

The nation-wide Forest Survey, being made by the United States Forest Service, was authorized by the McSweeney-McNary Forest Research Act of 1928. Its five-fold object is: (1) to make an inventory of the present supply of timber and other forest products, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which this supply is being diminished through industrial and local use, windfall, fire, and disease, (4) to determine the present requirement and the probable future trend in the requirement for timber and other forest products, and (5) to correlate these findings with existing and anticipated economic conditions in order that policies can be formulated for the effective use of land suitable for forest production.

In the South, the Forest Survey functions as an activity of the Southern Forest Experiment Station with headquarters at New Orleans, La.

Southern Forest Survey Staff

I. F. Eldredge	Regional Director
M. M. Lehrbas	Resource Economist
R. K. Winters	Resource Economist
F. A. Ineson	Resource Economist
P. R. Wheeler	Computing Chief
W. E. Houser	Manager of Field Crews

PULPING AND NONPULPING CORDWOOD VOLUME
IN SURVEY UNIT NO. 2,
FLORIDA

This release covers all west Florida, that narrow arm of the state which extends 250 miles westward from the Aucilla River to the Perdido. Averaging 65 miles in width, the area borders the Gulf of Mexico along its entire southern front. Along the coast, the terrain is characterized by sandy flatwoods and marshy sea-level lowlands; this belt, ranging from 1 to 50 miles in width, occupies about one-half the total area of the unit. Behind the coastal strip lies a rolling, well drained, and for the most part, sandy surface with elevations reaching 300 feet above sea-level.

The principal drainage of the area is southward to the Gulf through rivers that originate in Georgia and Alabama to the north. Among the main streams are the Aucilla, Ochlockonee, Apalachicola, Choctawhatchee, Escambia, and Perdido Rivers. So far as the transportation of pulpwood is concerned, all these rivers are navigable for at least half their length through the unit; the Apalachicola and the Choctawhatchee are navigable throughout their length in the unit and for a distance in states to the north. Pensacola, Panama City, and Port St. Joe have port facilities for ocean-going vessels, and there are several undeveloped harbors. Except for a short distance between Choctawhatchee Bay and West Bay, the Intra-coastal Waterway system is complete along the entire coast.

The Louisville and Nashville, and the Seaboard Air Line together traverse the unit from east to west. The Atlantic Coast line and the St. Louis and San Francisco tap the area at the east and west ends respectively. These roads are supplemented by several smaller common carriers and logging railroads running from the coast to the interior. Slightly over 1000 miles of hard surfaced highways connect the principal cities and towns.

Information presented in this release is based on data gathered in the spring and summer of 1934 by the Forest Survey. Specially trained cruisers measured the timber and recorded the forest and land-use conditions on nearly 9,000 quarter acre sample plots systematically located at intervals of 660 feet on parallel compass lines 10 miles apart run entirely across the area from east to west. The preliminary estimates presented here are subject to revision later in the final report. If any changes are made, however, they will probably be neither extensive nor basic.

While estimates are given here of the volume of cordwood in species suitable for pulp making, no effort is made to show what part of this resource is available for conversion into pulp. The present growing stock must continue to supply raw materials for existing wood-using industries. From every angle of sound regional economy, use of the resource should be based upon: (1) The sustained-yield capacity of the growing stock; (2) the maintenance, with room for reasonable expansion, of existing industries; and (3) an integration of utilization such that wood products find their highest uses in industry. In the final and complete unit report an analysis and interpretation of the resource situation will be undertaken.

LAND AREA

The unit has an unusually large proportion of forest land, as shown by the area figures for the different land-use classes in Table I; nearly 83% of the area is forest land. Less than one-tenth of the land area is in cultivation. During the past 5 years, eighteen times as much agricultural land was abandoned, to revert to forest, as forest land was cleared for agricultural use.

TABLE 1. -- Area¹ classified by major land uses

Land-use classes	Area in acres	Percent of total area
Forest:		
Productive	6,017,500	82.6
Nonproductive ²	17,700	.2
Total forest	6,035,200	82.8
Agricultural:		
In cultivation:		
Old cropland ³	695,700	9.5
New cropland ⁴	4,200	.1
Out of cultivation:		
Idle ⁵	145,200	2.0
Abandoned ⁶	74,300	1.0
Improved pasture ⁷	37,200	.5
Total agricultural	956,600	13.1
Other:		
Prairie)		
Marsh)		
Waterways)	295,200	4.1
Towns and villages)		
Roads, railroads, etc.)		
Total area	7,287,000 ⁸	100.0

¹ Does not include meanderable water area.

² Nonproductive forest land is forest area that has not the qualities essential for the growth of commercial timber species.

³ Land cultivated more than five years and on which a farm crop was raised within two years prior to the date of survey.

⁴ Land converted from forest to cropland within five years prior to survey date.

⁵ Cultivated land that has been idle for two years or more, but has not reached the abandoned stage.

⁶ Land once cultivated but showing distinct evidence of having been abandoned for agricultural crop production; no attempt has been made to maintain it as improved pasture.

⁷ Cleared or open land under fence used primarily for grazing; a real attempt has been made to maintain a sod.

⁸ Including approximately 600,000 acres that have been acquired or are in the course of acquisition within Federal forest purchase areas.

In the presentation of these survey data, it is to be noted that owing to the sampling method used in collecting them, usually the greater the area or volume in any given classification the more accurate are the data for that classification. Classes that are of infrequent occurrence and relatively small in quantity cannot generally be determined with as high a degree of accuracy as is obtainable for classes that occur more frequently and in substantially greater quantities. Small tabular figures are to be taken as showing, not the exact magnitude of the classes involved, but their relative magnitude in comparison with that of other classes.

FOREST AREA

Table 2 classifies the forest area of 6 million acres by forest conditions and forest type groups. The forest type groups are designated in the table by their pre-dominant species. Forest conditions are defined as follows:

<i>Old growth:</i>	Stands composed predominantly of sawlog-size trees that have the characteristics of the original mature trees found in the region. ("Sawlog size" signifies a minimum diameter of 13.0 inches outside of bark at breast height in the hardwood species, 9.0 inches in the pine species).
<i>Uncut:</i>	Old-growth stands from which less than 10 percent of the volume has been cut.
<i>Partly-cut:</i>	Old-growth stands from which 10 percent or more of the volume has been cut but in which the remaining volume per acre in old-growth sawlog-size trees is at the rate of at least 1,000 board feet of hardwood, or hardwood and pine mixed, or 600 board feet of pine.
<i>Second growth:</i>	Stands that have succeeded the original old growth as a result of forest cutting or other causes.
<i>Sawlog size:</i>	Second-growth stands from which less than 10 percent of the sawlog-size trees have been cut, and in which the remaining volume per acre in sawlog-size trees is at the rate of at least 600 board feet.
<i>Uncut:</i>	
<i>Partly-cut:</i>	Second-growth stands from which 10 percent or more of the sawlog-size trees have been cut, but in which the remaining volume per acre in sawlog-size trees is at the rate of at least 400 board feet.
<i>Under sawlog size:</i>	Second-growth stands composed predominantly of under sawlog-size trees, less than 10 percent of which have been cut. The volume of sawlog-size timber present is at the rate of less than 600 board feet per acre.
<i>Uncut:</i>	
<i>Partly-cut:</i>	Second-growth stands composed predominantly of under sawlog-size trees, 10 percent or more of which have been cut. The volume of sawlog-size timber present is at the rate of less than 600 board feet per acre.

Reproduction: Areas not falling into any of the previous classifications, and bearing seedlings less than one inch in diameter at the rate of 80 or more per acre.

Clear-cut: Cut-over areas in which an insufficient quantity of young growth has come in to classify them either as second growth or as reproduction.

After several decades of cutting, only 17 percent of the forest area is in old-growth timber, as shown in table 2. The saw-log size stands, including both old and second growth, are found on 31.6 percent of the forest area; while under-sawlog-size stands and reproduction cover 53.8 percent. The effects of clear-cutting and fire have been so severe on 14.6 percent of the forest area that no natural reforestation has as yet taken place. Turpentine pines, longleaf and slash, predominate on 4,122,000 acres; the other pines, mainly loblolly and shortleaf, on 509,100; and the hardwoods on 1,386,400 acres. Hardwoods occupy a larger area of old growth forest than do either of the pine types. About 44% of the forest area is in gently rolling to moderately hilly uplands; 30% in flat woods; 22% in swamps, bays, ponds and branch heads; and 4% in river bottoms.

TABLE 2. -- Productive forest area by forest conditions and forest type groups

Forest conditions	Forest type groups designated by predominant species			Total	Percent of total produc- tive forest area
	Longleaf and slash pine	Loiblolly and short- leaf pine	Hardwood		
Old growth:					
Uncut	148,500	32,100	181,600	362,200	6.0
Partly cut	283,700	44,800	319,100	647,600	10.8
Total old growth	432,200	76,900	500,700	1,009,800	16.8
Second growth:					
Sawlog size:					
Uncut	524,300	157,900	83,600	765,800	12.7
Partly cut	70,100	47,200	11,900	129,200	2.1
Under sawlog size:					
Uncut	1,655,600	166,400	653,500	2,475,500	41.2
Partly cut	41,400	1,700	5,900	49,000	.8
Total second growth	2,291,400	373,200	754,900	3,419,500	56.8
Reproduction	552,300	44,700	113,900	710,900	11.8
Clear-cut and fire-killed	846,100	14,300	16,900	877,300	14.6
Total all conditions	4,122,000	509,100	1,386,400	6,017,500	100.0
Percent of total pro- ductive forest area	68.5	8.5	23.0	100.0	

VOLUME ESTIMATE

Table 3 classifies the cordwood volume estimate for the area by forest type groups and by tree species groups and diameter classes. The forest type groups are designated in the table by their predominant species. The tree species groups are as follows:

Turpentine pines:	Longleaf and slash pine, the two species that are worked for turpentine.
Nonturpentine pines:	Loblolly, shortleaf, pond and spruce pines--species not worked for turpentine.
Pulping hardwoods:	Gum, bay, poplar, maple, magnolia, and associated minor species--generally considered of value for the production of paper pulp.
Nonpulping hardwoods:	Cypress, oak, hickory, pecan, ash, and associated minor species--not generally considered of value for the production of paper pulp.

This volume estimate is based upon a conversion of the cubic-foot volume of the timber (including bark) into standard cords 4 x 4 x 8 feet, by using a factor of 90 cubic feet for pine and cypress and 80 cubic feet for hardwood. It covers all live trees 5.0 inches or over in diameter, except sound and rotten culls, and includes only the stemwood to a variable top diameter (with 4.0 inches as a minimum), except for the sawtimber-size cypress and hardwoods, for which only the sawlog portion of the trees is included. This estimate, therefore, disregards altogether the sound and rotten culls, the sound trees less than 5.0 inches in diameter, all limbwood, the stemwood less than 4.0 inches in diameter in the pines and the small cypress and hardwoods, and the stemwood above the last sawlog in the sawtimber-size cypress and hardwoods. No deduction was made for woods cull-- that part of the tree that would be left in the woods because of rot, fire scar, crook, bad knots, or other defects. The diameter measurement of the trees was taken 4½ feet from the ground, except on the turpentine trees, on which it was taken 10 feet from the ground. For the turpentine trees the volume given excludes the 8-foot butt section that bears the turpentine scar. The turpented trees include the longleaf and slash pines being worked at present, or temporarily idle or worked-out, as opposed to the round trees that have never been worked for naval stores.

The forest stand of the unit, converted to cordwood measurement, contains 32,292,000 standard cords, or an average of more than 5 cords per forest acre. Of this, the pulping species make up 24,982,000 cords, an average of more than 4 cords per forest acre. About 35 percent of the total volume is in turpentine pines, 12 percent in the nonturpentine pines, and 30 percent in the pulping hardwoods.

Of the total 11,355,000 cords of wood in turpentine pines, round trees contain 6,450,000 cords; working or temporarily idle trees, 3,516,000 cords; and worked-out trees, 1,389,000 cords. Much of the worked-out timber is unsuitable for uses other than pulping.

TABLE 3. -- Cordwood volume of pulping and nonpulping species

Tree Species Groups	Tree diameter classes ¹	Forest type groups designated by predominant species			Total	Percent of total volume
		Longleaf and slash pine	loblolly and short-leaf pine	Hardwood		
<i>Inches</i> ----- <i>Thousands of cords</i> ² -----						
Pulping species:						
Turpentine pines:	6 - 8	3,896	52	55	4,003	12.4
	10 - 12	4,262	66	64	4,392	13.6
	14 - 18	2,443	83	26	2,552	7.9
	20 & over	363	26	19	408	1.3
Total turpentine pines		10,964	227	164	11,355	35.2
Nonturpentine pines:	6 - 8	85	602	45	732	2.3
	10 - 12	138	949	53	1,140	3.5
	14 - 18	154	1,196	60	1,410	4.4
	20 & over	29	679	42	750	2.3
Total nonturpentine pines		406	3,426	200	4,032	12.5
Total pines		11,370	3,653	364	15,387	47.7
Hardwoods:	6 - 8	528	276	1,676	2,480	7.7
	10 - 12	317	354	2,445	3,116	9.7
	14 - 18	107	185	2,368	2,660	8.2
	20 & over	27	62	1,250	1,339	4.1
Total Pulping hardwoods		979	877	7,739	9,595	29.7
Total Pulping Species		12,349	4,530	8,103	24,982	77.4
Nonpulping species:						
Hardwoods:	6 - 8	605	200	1,448	2,253	7.0
	10 - 12	374	165	1,292	1,831	5.7
	14 - 18	202	141	1,444	1,787	5.5
	20 & over	150	61	1,228	1,439	4.4
Total nonpulping species		1,331	567	5,412	7,310	22.6
Total All Species		13,680	5,097	13,515	32,292	100.0
Percent of total volume		42.4	15.8	41.8	100.0	

¹ Diameter measurement of trees taken outside of bark $4\frac{1}{2}$ feet from the ground, except on the turpentine pines, on which it was taken 10 feet from the ground. Trees ranging from 5.0 to 8.9 inches in diameter placed in the 6-8 inch class; corresponding limits apply to the other classes.

² To convert to full number of cords add "000".

The estimate of the region's cordwood volume, by tree species groups and diameter classes (Table 3 on page 8) is presented graphically in Figure 2.

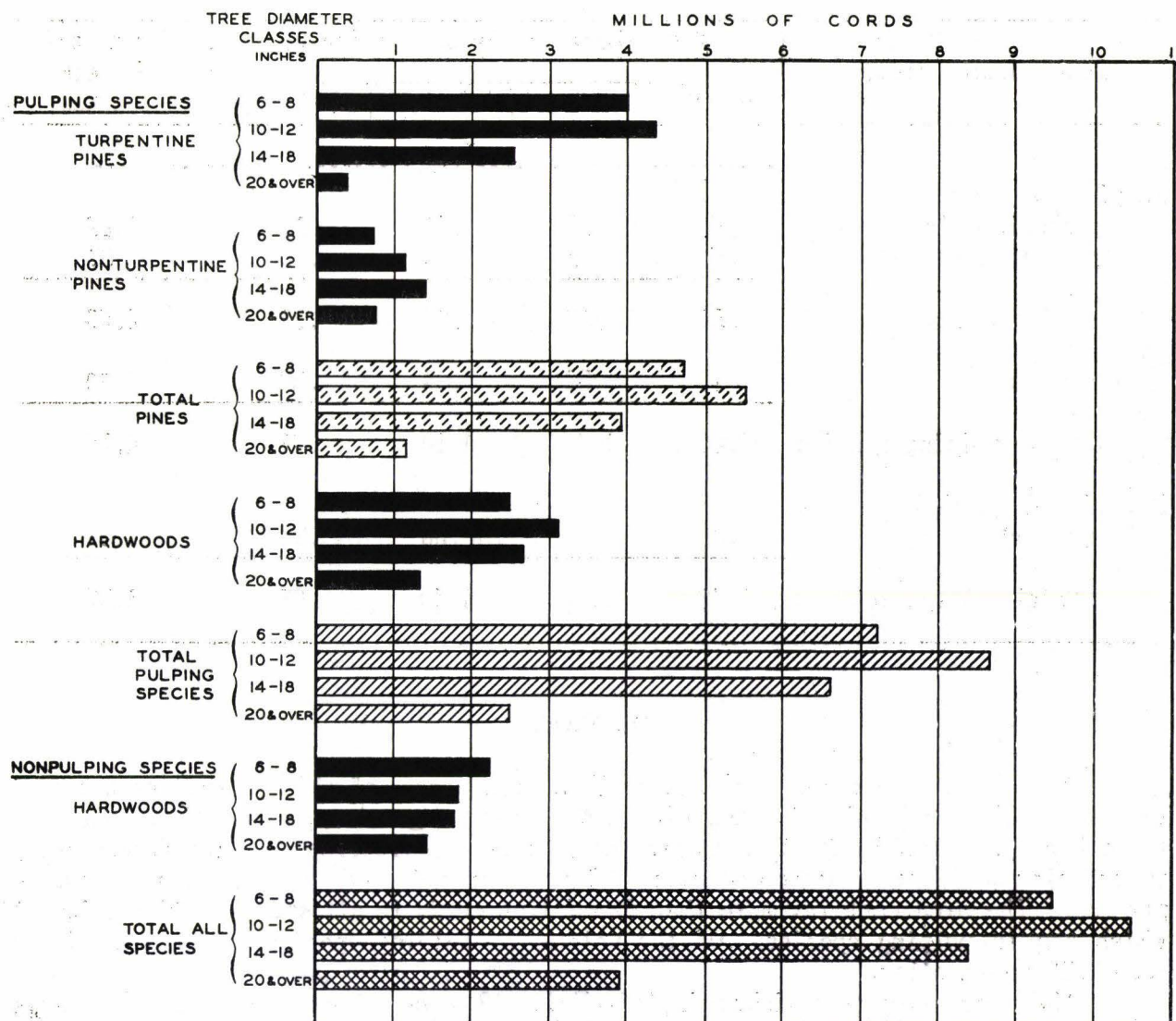


FIG. 2-CORDWOOD VOLUME OF PULPING AND NONPULPING SPECIES. (SEE TABLE 3, PAGE 8)

In west Florida, the stand, including all species and sizes, averages 5.37 cords per acre, as indicated in table 4. This and other average stand-per-acre figures given below were obtained by dividing the volume figures in cords (given in table 3) by the total productive forest acreage in the region.

TABLE 4. -- Cordwood volume of pulping and nonpulping species on the average acre of forest land

Tree species groups	Tree diameter classes in inches				Total all diameter classes
	6 - 8	10 - 12	14 - 18	20 & over	
----- Cords -----					
Pulping species:					
Turpentine pines	.67	.73	.42	.07	1.89
Nonturpentine pines	.12	.19	.24	.12	.67
Total pines	.79	.92	.66	.19	2.56
Hardwoods	.41	.52	.44	.22	1.59
Total pulping species	1.20	1.44	1.10	.41	4.15
Nonpulping species:					
Hardwoods	.38	.30	.30	.24	1.22
Total all species	1.58	1.74	1.40	.65	5.37

SUMMARY

West Florida comprises an area of 7 million acres, of which 6 million are forest land. The longleaf and slash pine types cover a greater part of this area than all other types combined. Old growth stands make up 17 percent of the forest area; second growth, 57 percent; reproduction, 12 percent; and clear-cut and fire-killed, 14 percent. The area contains more than 32 million cords in all species, 25 million of which are in pulping species. Of the volume in pulping species, 63 percent is in trees 12" and smaller.

There are now established in this Unit 113 naval stores processors, 29 large and 157 small sawmills, and one large sulphate pulp mill, all of which depend upon the forest resources of the area. It seems obvious that from the standpoint of a continuing supply of raw material for the several industries involved, as well as of the best use of the growing stock, there is need and opportunity for planned integration in the use of the timber resources of this region.

MAJOR FOREST TYPES SURVEY UNIT NO. 2 FLORIDA

